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Biotechnology Notes

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Biotechnology Notes, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

INSIDE USDA

TRANSGENIC FISH TAKE THE PLUNGE

On May 22, Auburn University's Alabama Agricultural Experiment Station put 50,000 young carp -- half of them transgenic, half controls -- into 10 brand new outdoor research ponds in an experiment that could eventually lead to new methods of increasing the production of food fish in the United States. USDA recently completed a thorough environmental assessment of the project and concluded the research presented no significant impact.

"This research experiment begins a new phase in the application of the tools of biotechnology to fish genetics," said John Patrick Jordan, administrator of USDA's Cooperative State Research Service (CSRS), the agency which partly funded the research project. "It also signifies the major role being played by our land-grant universities in solving agricultural problems through state-of-the-art technology."

In earlier indoor tests, Auburn scientists had inserted a growth hormone (somatotropin) gene from rainbow trout into carp. As a result, the carp grew 20-40 percent faster than normal.

In the outdoor phase of the experiment, scientists will look at any effects the more natural environment might have on fish performance. To ensure the fry would not escape from the ponds or be removed, Auburn specially constructed new ponds and added netting, fences, state-of-the art water filtration/drainage systems, and other safeguards. The experiment will be terminated before the fish reach sexual maturity.

APHIS APPROVES SECOND RABIES FIELD TEST

USDA's Animal and Plant Health Inspection Service has authorized the Wistar Institute of Philadelphia, Pennsylvania, to conduct a field test of a live experimental vaccinia-vector recombinant rabies vaccine for raccoons in a remote section of north central Pennsylvania. If this test is as successful as its predecessor, which began last year on an island off the Virginia coast, it could

pave the way for longer and more widespread field tests and possible commercial release of the new vaccine.

USDA'S ABRAC HOLDS SPRING MEETING

At the May 22-23 meeting of USDA's Agricultural Biotechnology Research Advisory Committee (ABRAC), members were brought up-to-date on a number of issues including public reaction to the proposed research guidelines and how the guidelines might be implemented, a summary of comments on CSRS's proposed rule for implementing the National Environmental Protection Act, international biotech activities, and risk assessment research proposals.

Members also considered recommendations suggested by the Classification/Confinement Working Group for revising the guidelines. One such recommendation was to reduce the number of levels of safety concern for genetically modified organisms from five to three.

Finally, the ABRAC heard a special presentation on the potential applications of biosensors in agriculture, given by Captain W. Schultz, J. Campbell, and F. Ligler of the Naval Research Laboratory. Minutes of the entire meeting are being prepared and will become available, free of charge, in several weeks. The next ABRAC meeting is scheduled for December 11-13, 1991.

NAL'S NEW PLANT GENOME INFORMATION CENTER

USDA's National Agricultural Library (NAL), located in Beltsville, MD, has just opened a Plant Genome Data and Information Center, or PGC, for use by the agricultural community. The PGC provides information to its users on all aspects of plant and animal genome mapping including bibliographies of current literature relevant to genome mapping and the names of experts and organizations currently working in the field. Database searches for requested topics are free of charge; however, longer and more exhaustive searches do operate on a cost-recovery basis. For more information please call 301-344-3875 or write to: Plant Genome Data and Information Center, NAL, Room 1402, 1031 Baltimore Blvd., Beltsville, MD 20705.

BIOTECH COUNCIL BEGINS IMPLEMENTING CHARGE

Consumer information relevant to food products and biotechnology was the main agenda item at the June 4 meeting of USDA's Biotechnology Council. The Council collected information materials from agency representatives, and several members volunteered to survey the materials and develop an inventory of major points, issues, and policy options. This inventory will be used to help

prepare a USDA-wide plan for communicating with consumers about biotechnology. The request for such a plan was initiated by the co-chairs of the Committee on Biotechnology in Agriculture.

NEWS AROUND THE NATION (AND THE WORLD)

OECD GROUP DISCUSSES LARGE SCALE RELEASES

Eighteen representatives from Japan, The Netherlands, Belgium, the United States, the United Kingdom, Italy, Norway, and staff of the Organization of Economic Cooperation and Development (OECD) met in Manchester, England June 9-11 to talk about biosafety issues associated with large-scale testing of genetically modified plants. This chairman's working group is one of several that reports to OECD's Group of National Experts on Safety in Biotechnology.

A background paper entitled "A Discussion Paper on Performance Trials for the Development of Plant Cultivars" formed the basis for the discussion on large-scale testing. (The term "performance trial" designates a stage of development rather than the size or number of field trials). The paper was prepared by a U.S. interagency group.

The nations with industrialized economies belong to the OECD, which is taking the lead in trying to reach international agreement on scientific principles that underpin sound decisions on oversight of biotechnology.

LESS IS SOMETIMES MORE

Compared to most land-grant universities or other publicly supported schools, privately-funded Worcester Polytechnic Institute (WPI) in Worcester, Mass. is quite small. But according to Office of Agricultural Biotechnology (OAB) Director Alvin Young who recently visited the campus, the quality of WPI's research program measures up ounce for ounce to any big-league institution. In one such project, WPI is working with the National Aeronautics and Space Administration (NASA) to understand the role of genetics in plants grown in confined environments with limited light, water, and nutrients.

WPI's research program is closely linked to its academic program which offers a master's of science degree in biotechnology. Students learn not only the basics of genetic engineering and DNA technology, but also are required to take at least three courses in another department so they can apply biotechnology techniques to

current agricultural or commercial problems. For more information about WPI, please call its Department of Biology at 508-831-5538.

NEW EGYPTIAN BIOTECH LAB OFF TO STRONG START

In less than one year since its commissioning by the United Nations Development Programme, the National Agricultural Genetic Engineering Laboratory (NAGEL) in Giza, Egypt, has put into place skilled researchers, organized its research agenda, provided in-house training for professionals and support staff, and made important adjustments to the physical structure of the lab and ancillary facilities.

These achievements were made under the lab's Director, Magdy Madkour, who is quick to point out that several projects have been published in professional, peer-reviewed journals. Looking ahead, NAGEL will seek international collaborators for research initiatives and establish training and networking ties with Egyptian scientists as well as with other scientists from around the world.

THESE TOMATOES STILL DON'T WALK, TALK, OR FLY

If you were expecting the tomato seeds that NASA sent into space in 1984 to develop some far-out mutations, don't be too disappointed. In two greenhouse experiments conducted by USDA's Agricultural Research Service (ARS) at its Vegetable Laboratory in Charleston, SC, researchers found the journey into space had no effect on 18 characteristics measured in the first generation of plants grown from these seeds.

They compared the 18 characteristics of plants grown from the orbiting seeds with those plants grown from control seeds that were stored on Earth. All seeds were from the same seed lot of the same cultivar. Among the factors studied were seedling emergence, plant height, number of flowers, number of sepals, percentage of soluble solids, fruit weight, fruit diameter, position of fruit clusters, and leaf area.

To learn more about the project, please call Claude Thomas at the ARS Vegetable Laboratory at 803-556-0840.

LAND OF THE RISING SUN: BIOTECHNOLOGY IN JAPAN

This is the first of a two-part series describing agricultural biotechnology in Japan. The information was provided by OAB Director Alvin Young and international affairs specialist Martha Steinbock after their recent visit to "the land of the rising sun." Part two will look at Japan's first field test and its views on international issues.

Publicly-Funded Biotechnology Research -- Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF) supports basic and applied biotech research. Funding has steadily increased from \$54.8 million in 1989 to \$62.2 million in 1991. Other government agencies also fund some ag biotech research. Publicly funded projects are carried out at about 20 institutes linked with MAFF and at many of the 100 national universities. For government scientists in Japan, close ties among research teams at different institutes and close ties to industry tend to compensate for limited professional development opportunities, such as post-doctoral fellowships and attending international conferences.

Policymaking -- Policy recommendations and decisions are made by the Agricultural Forestry and Fishery Research Council, which considers biotech research to be a separate entity with its own line item rather than as a set of tools to be funded throughout traditional research programs.

Regulatory Oversight -- Biotechnology oversight is provided by a number of voluntary guidelines which draw from those of the National Institutes of Health and the OECD. However, the scope of all the guidelines is limited to rDNA technology. Each agency has a national-level advisory committee of outside experts. Last year these committees reviewed about 800 laboratory experiments. Institutions have biosafety committees which review low risk contained work. Last year they reviewed about 3800 laboratory experiments.

IN CASE YOU WEREN'T THERE

■ U.S. Representative Norman Mineta, D-Calif., gave the keynote address at the international biotechnology meeting sponsored by the Association of Biotechnology Companies, May 14, in Washington, DC. Mineta represents the Silicon Valley area of southern California, and is a senior member of the U.S. House Committee on Science, Space and Technology. He said the Federal government could help the biotech industry by reducing the Federal deficit, by stressing long-term over short-term planning, and by reducing the capital gains tax rate. A permanent research and development tax credit, he said, would create incentives for emerging growth industries like biotechnology. He said he also supports the use of loans to help small companies move ideas from the lab to the marketplace. He also believes the United States faces a "crippling shortage" of engineers, teachers, and scientists, and that we need to do more to interest children in science.

NEW PUBLICATIONS

■ Biotechnology Business News. A new newsletter launched by Financial Times, a British firm, that provides international coverage of biotech companies, products, markets, and regulatory developments. For more details call 071-240-9391, or FAX inquiry to 071-240-7946.

■ The Business of Biotechnology: From the Bench to the Street. R. Dana Ono, Editor. July 1991. Published by Butterworth-Heinemann. Stoneham, Mass. To order call 1-800-366-2665.

■ Introduction to Genetic Engineering. William H. Sofer, Editor. April 1991. Published by Butterworth-Heinemann. Stoneham, Mass. To order call 1-800-366-2665.

■ Transgenic Animals. N. L. First and F. P. Haseltine, Editors. 1990. Published by Butterworth-Heinemann. Stoneham, Mass. To order call 1-800-366-2665.

■ "Herbicide-Resistant Crops." This 24-page report was prepared by the Council for Agricultural Science and Technology (CAST) in Ames, Iowa. May 1991. \$8. To place an order please call 515-292-2125.

■ "Biotechnology and the American Agricultural Industry." Prepared by the Council on Scientific Affairs of the American Medical Association. JAMA. March 20, 1991, Volume 265, No. 11.

■ "Proceedings of the International Symposium on the Biosafety Results of Field Tests of Genetically Modified Plants and Microorganisms (Nov. 27-30, 1990)." Published by the Agricultural Research Institute, Bethesda, MD. June 1991. \$10. To place an order please call 301-530-7123.

UPCOMING MEETINGS

July 6-10: Two joint events in the field of biotechnology will take place this week in Sao Paulo, Brazil, including "The First Latin-American Fair of Biotechnology," and "The Second Brazilian Fair of Biotechnology." For more details, write to Certame Eventos, Rua Mexico, 11 Sala 201, 20031 Rio de Janeiro, Brazil; or FAX inquiries to 021-240-8195 in Rio or 011-883-1918 in Sao Paulo.

July 9: "EPA Issues Facing Biotechnology," is the title of a presentation that will be given in Washington, DC by Elizabeth Andersen of the EPA. Event sponsored by the Washington Metropolitan Area Chapter of the Association of Biotechnology Companies. \$10 registration fee. Call 202-234-3330 or FAX inquiry to 202-234-3565.

July 18: "Research Opportunities in Biotechnology." Gaithersburg, MD. This is a panel discussion with representatives from the Maryland Biotechnology Institute, the University of Virginia, and the Pennsylvania Consortium of Universities. The meeting is sponsored by the Montgomery County Maryland Hi-Tech Council Inc. To make a reservation call 301-762-6325.

July 21-26: Gordon Conference on Applied Environmental Microbiology. Colby-Sawyer College, NH. Registration forms are available from The Gordon Research Conferences, University of Rhode Island, Kingston, RI 02881-0801.

July 23-24: Regulatory Aspects of Research and Product Development Involving Biotechnology: Health and Agriculture. Alexandria, Va. Call 703-250-5900 or FAX inquiry to 703-250-2513.

July 29-31: The Third National Conference on Federal and State Regulation of Biotechnology entitled "Transgenic Plants: Regulatory Path to Commercial Production." St. Louis, Mo. Sponsored by USDA's APHIS/BBEP. (See page 8 for more details.)

Aug. 1-4: "Frontiers of Biotechnology in Agriculture 1991." This symposium will be held on the shores of the Sea of Galilee in Israel. For details call 972-3-654571; or FAX inquiry to 972-3-655674.

Aug. 5-8: "The Applications of Biotechnology to Tree Culture, Protection, and Utilization." Symposium sponsored by OAB and the Forest Service. Columbus, Ohio. For details call Rhonda Coburn at 614-369-4476; or FAX inquiry to 614-363-1437.

Aug. 29-31: Second International Conference of the Release of Genetically Engineered Microorganisms. University of Nottingham, England. For details write to SGM Meetings Office, 62 London Road, Reading RG1 5AS, United Kingdom.

Sept. 25-27: The Fifth Forum for Applied Biotechnology. Gent, Belgium. For details call 00-32-050-35-81-31 or FAX inquiry to 00-32-050-36-31-86.

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Biotechnology Notes is written by Marti Asner, public affairs specialist in USDA's Office of Agricultural Biotechnology. Suggestions for items to include in future issues are always appreciated and may be sent to USDA/OAB, Room 1001, Rosslyn Plaza East, 14th and Independence Ave., S.W., Washington, DC 20250-2200; or call the OAB at 703-235-4419. The FAX number is 703-235-4429.

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847 Federal Building,
Hyattsville, Maryland 20782
Telephone: 301-436-7601
FAX: 301-436-8724**

***A special preconference tour of the Monsanto Research Laboratories in St. Louis is scheduled for July 29. The conference will be held the following two days, July 30-31.**